

Sustainable Development and the Natural Heritage

The SNH approach

SCOTTISH
NATURAL
HERITAGE



Wise use



Carrying capacity



Environmental quality



Precautionary principle



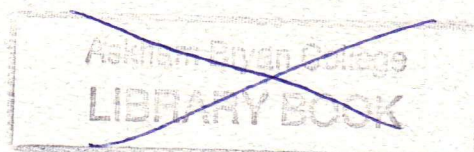
Shared benefits



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Preface

In this policy paper we set out how SNH interprets the concept of 'sustainable development' and how we intend to apply it in the course of fulfilling our statutory responsibilities for Scotland's natural heritage.

SNH is Scotland's natural heritage agency, so it is only right that this paper should begin by indicating what the term 'natural heritage' means to us and how it informs our thinking. We take a holistic view of the natural heritage which encompasses its cultural and historical dimensions as well as the more obvious factors of wildlife, habitat and landscape.

The paper goes on to consider the historical background to the various perspectives which have informed the development of the concept of environmental sustainability. In **Part 2** we consider the fundamental premises and ethical principles on which we base our policies for sustainable development, which in turn (in **Part 3**) inform the Guidelines for sustainable development which provide the basis for our own actions and our advice to others. **Part 4** outlines some of the ways in which these Guidelines should be applied in our day to day work.

In publishing this policy paper we hope not only to offer guidance to the staff of SNH but also to stimulate further debate on sustainable development in Scotland and beyond. The Government is currently preparing a UK strategy for sustainable development and we have fed the thinking in this paper into that process. Many of the issues relating to the application of the principles of sustainability remain unresolved and we hope that the UK strategy will help in their resolution. However, there are no pat or easy answers. This policy paper is by no means the last word that SNH will have on the subject; rather, it should be seen as a point of reference for the present. We shall develop our approach in the light of the UK strategy and shall welcome comments and further contributions on the issues we have addressed in this paper.



Magnus Magnusson
Chairman
Scottish Natural Heritage

What is 'the natural heritage'?

The concept of 'natural heritage' is central to the founding legislation and remit of SNH. The Natural Heritage (Scotland) Act 1991 states: "For the purposes of this Act, 'the natural heritage of Scotland' includes the flora and fauna of Scotland, its geological and physiographical features, its natural beauty and amenity; and references to 'natural heritage' shall be construed accordingly." 'Natural heritage' therefore embraces the combination and interrelationships of landform, habitat, wildlife and landscape, and their potential for enjoyment.

But it cannot stop there. The natural heritage has cultural and historic dimensions which must also be considered, because there is not much which is pristine about the natural heritage in Scotland. 'Semi-natural' is a more accurate term, because of the effect people have had on the environment over the last few thousand years. The two concepts, natural heritage and cultural heritage, are therefore closely related.

The natural heritage is not limited to particular places nor special areas. Our environment consists of rock, soil, water, air and living things, linked by complex and ever-changing natural processes. SNH regards the natural heritage as comprising all these elements and their interaction, incorporating the land, the sea and the community of life they support. People are part of this community as, like other species, we depend upon it and interact with it. SNH recognises that this living heritage is constantly changing as a consequence both of natural processes and of our own activities, and that human welfare in its broadest sense is ultimately dependent on the maintenance of our complex environment.

Our focus on wildlife, on habitats, on landscapes and on natural processes will therefore take into account an interest in human activity within this community of life. This legitimises as an activity the protection and enhancement of ecosystems and landscapes which have been altered by human activities; and recognises that the protection of special areas of land is part of a much broader sphere of interest.

The use of the term 'heritage' emphasises a critical time dimension. 'Heritage' is not just what we inherit: it is also that which we bequeath to future generations. Therefore, we do not simply inherit 'heritage'; we have a clear role as guardians to manage that heritage carefully and pass it on to posterity unblemished and where possible

restored and enhanced. At the same time we have a legitimate role in creating new heritage provided that, in so doing, we are not damaging our inherited environment.

It is this belief which informs SNH's duty to promote the fundamental principle of environmental sustainability - the need to use our natural resources wisely and without compromising the inheritance of the future.

Part 1:

"In a manner which is sustainable"

'Sustainability is a concept which has been developed for a number of years and is at the centre of the Government's environmental policy. The concept is that the environment should be so regarded and maintained that it does not erode or degrade and is handed on to future generations in the same condition or possibly enhanced or developed. Therefore no operation should be allowed to take place which would damage the environment without restoring or replenishing the damage.'

(Ian Lang, Secretary of State for Scotland: House of Commons, 11 February 1991)

SNH and Sustainability

- 1.1 According to our founding legislation, the Natural Heritage (Scotland) Act 1991, the general aims and purposes of SNH are: "to secure the conservation and enhancement of, and to foster understanding and facilitate the enjoyment of, the natural heritage of Scotland; and SNH shall have regard to the desirability of securing that anything done, whether by SNH or any other person, in relation to the natural heritage of Scotland is undertaken in a manner which is sustainable". In this paper we discuss how SNH should interpret and carry out this duty.
- 1.2 The 1991 Act introduced the word 'sustainable' into UK legislation for the first time. The word derives from the Latin *sustenire*, 'to uphold'; so sustainability is basically about 'keeping things going', or maintaining a set of activities, no matter how complex, for a very long time.
- 1.3 The use of the term in the Act clearly implies an environmental context to the desire to 'keep things going'. This reflects the view that all our activities are ultimately dependent upon the environment and that, therefore, to sustain any activity means also sustaining its environment. This is an important step in the growing realisation that we all need to reassess and redefine our relationship with our environment. It reflects a particular perspective on the world, namely, that we should see ourselves as part of, and dependent upon, a wider community of life and act accordingly. In this sense, sustainability involves finding ways of maintaining human welfare which do not damage the foundations on which it rests.

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- 1.4 Creating the right conditions for establishing sustainability will require changes in our ethical frameworks, the principles which guide our behaviour, as much as improvements in our understanding of our life support systems and how we interact with them.

The historical background

- 1.5 The development of such an ethical perspective has a long pedigree and goes hand in hand with the process of increasing our understanding. It is represented in the writings of many people concerned with the human/environment relationship earlier this century, such as Aldo Leopold and Frank Fraser Darling. In Britain the idea that the environment and development are inseparable was reflected officially in the Parliamentary reports which led to the creation of the Nature Conservancy and National Parks Commission in the 1940s. An example of this can be found in the 1947 report of the Scottish Wildlife Conservation Committee (*The Conservation of Nature in Scotland*), which states that a detailed knowledge of the environment and how we affect it is:

‘of fundamental importance ... for the best economic development of agriculture, forestry, freshwater fisheries, pest control, veterinary science, and for the propagation of beneficial birds, insects and other forms of life’.

- 1.6 In the last two decades a series of initiatives at the international level has identified the concept of sustainable development as a means of reconciling the conflicting desires in countries at different stages of economic progress for development and environmental protection.
- 1.7 The 1972 UN Conference on the Human Environment at Stockholm explicitly linked economic development with environmental responsibility. In 1980, the World Conservation Strategy called for a new ethic ‘embracing plants and animals as well as people’ and set out three objectives for conservation of the environment:
- to maintain essential ecological processes and life-support systems;
 - to preserve genetic diversity; and
 - to ensure sustainable use of species and ecosystems.

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- 1.8 The report of the World Commission on Environment and Development, commonly called the Brundtland Report (*Our Common Future*, 1983), enunciated a guiding principle for sustainable development as:

‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs’.

This was further defined in an attempt to provide a basis for the application of the concept of sustainable use in practice:

‘At a minimum, sustainable development must not endanger the natural systems that support life on earth: the atmosphere, the waters, the soils and the living beings’.

- 1.9 The United Nations Conference on Environment and Development (UNCED), held in Rio in 1992, gave further impetus to the debate through the creation of the UN Commission on Sustainable Development. One outcome of UNCED was Agenda 21, a comprehensive array of policies and programmes which provides a framework for action on developing sustainability into the next century by integrating environmental considerations into the whole range of human activities which constitute ‘development’; it called for national strategies for biodiversity conservation to be integrated into National Sustainable Development Plans. UNCED also resulted in the 27-point Rio Declaration which puts human beings at the centre of concerns for sustainable development with the proclamation that they are ‘entitled to a healthy and productive life in harmony with nature’ (Point 1).

- 1.10 In 1993 the European Community adopted its Fifth Action Programme on the Environment, entitled *Towards Sustainability*, which provides a basis for future community action on the environment. It breaks away from its predecessor programmes in that it does not treat ‘the environment’ as a separate sector. It uses the term ‘sustainable’ to describe policies and strategies for continued economic and social development ‘without detriment to the environment and natural resources on the quality of which continued human activity and further development depend’.

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- 1.11 Environmental policy in the UK has given increasing prominence to these issues in recent years as articulated, for example, in the White Paper on the Environment, *This Common Inheritance: Britain's Environmental Strategy* (1990). The use of the word 'sustainable' in the Natural Heritage (Scotland) Act 1991 is part of this trend in recognising the importance of the environment in sustaining human existence.

The purpose of this paper

- 1.12 'Sustainability' is used in this paper in the sense of the ability of an activity or development to continue in the long term without undermining that part of the environment which sustains it. SNH has been given a unique opportunity to play a very important role in the process of achieving sustainable development in Scotland, both directly and through our influence on others. Achieving it will, in many cases, require changes in individual and societal values, rather than just shifts in the policy and expenditures of public bodies.
- 1.13 Sustainability at the national level is dependent on the approach of a multitude of decision-makers with interests in, and responsibility for, a wide range of activities, each of which contributes in a small but significant way to the whole. We shall aim to ensure that our own actions have a positive impact, that our advice to others (at whatever level they are operating) enables them to have a greater positive impact, and that we work towards the creation of policy and regulatory frameworks which support those decision-makers who want to improve the sustainability of the activities for which they are responsible.
- 1.14 Although a great deal has been written about sustainable development, much of it is still highly theoretical or speculative and it is not yet clear how it can be put into practice. **Part 2** of this paper sets out the basis of SNH thinking on this issue which, given the lack of precedent, is still in its formative stages; **Part 3** explains the Guidelines we intend to apply in pursuing sustainable development; and **Part 4** summarises our priorities for action.

Part 2:

The SNH Rationale for Sustainable Development

- 2.1 The development of theory and practice in relation to sustainable development is based, at the global level, on a set of **fundamental premises**:
1. All human activity is ultimately dependent upon the environment, its natural resources and processes.
 2. The human population is growing rapidly.
 3. Resource use per capita is high in developed countries and is growing rapidly in developing countries.
 4. This high level of human activity is likely to have serious consequences for our quality of life and even for our survival.
 5. Our interactions with our environment and its natural processes are so complex that it is often difficult to predict the consequences of our activities.
- 2.2 In attempting to improve the sustainability of human activities, SNH will also be guided by the following **ethical principles**:
1. **Intergenerational equity** - we should do nothing which puts at risk the natural environment's ability to meet the needs, both material and non-material, of future generations;
 2. **International equity** - countries should accept responsibility for the environmental impacts of their own economic activities on other countries; they should avoid 'exporting' their environmental problems.
 3. **Societal equity** - one sector of society should not exploit natural resources nor damage the environment at the expense of another.
 4. **Inter-species equity** - we should respect other life-forms: rarely, if ever, are we justified in driving them to extinction for our own purposes.
- 2.3 SNH will respect all of the above premises and ethical principles in developing its policy for sustainable development in a Scottish context. However, in the UK the issue of population growth is of much less concern than it would be, for example, for a country which is still in the early stages of technological development. Also, in most developed countries, resource use per capita is no longer increasing, although in common with other industrially developed countries our current high levels of resource consumption would be unsustainable on a world-wide basis.

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- 2.4 The SNH rationale will also take account of the fact that the concept of sustainable development is interpreted differently by various protagonists (e.g. economists, ecologists, technologists, farmers, foresters, planners) depending on how it bears upon their own activities. We shall seek to understand the basis of this diversity of opinion and to take it into account as part of our wider socio-economic remit.
- 2.5 Related to these differences of opinion based on differing interests and values, there are also fundamental but so far unresolved questions on the future of human development:
- whether economic growth **per se** is unsustainable;
 - whether development and conservation are mutually incompatible; and
 - whether technology, which has increased human welfare immeasurably in the past, will be able to ensure more sustainable development in future.

The Sustainability of Economic Growth

- 2.6 The Club of Rome report, *Limits to Growth* (1972), gave prominence to the views of many resource economists and environmentalists who claimed that economic growth **per se** is inherently unsustainable and proposed that unless growth were stopped or reversed in a controlled way, modern society was doomed. A few years later the economist Fred Hirsch published *The Social Limits to Growth* (1977) which argued that continued economic growth was also socially unsustainable. Such views have been extremely influential among many decision-makers, but they never achieved acceptability among the financial and industrial communities which have the greatest power to change the manner in which we exploit the world's resources.
- 2.7 The interest of financiers and industrialists in sustainability was aroused in the late 1980s by the concept of the 'green consumer' and the associated idea that there could be such a thing as 'green growth'. Relevant developments ranged from 'green' detergents to environmental unit trusts. However, the initial enthusiasm among environmentalists for such ideas has begun to be tempered by cynicism. Although green growth may be more sustainable than the other kind, it may merely be

postponing the inevitable collapse brought on by excessive human consumption.

The Compatibility of Development and Conservation

- 2.8 A clear thread running through the debate about conservation and development is whether the problem lies in how we conceptualise 'growth', rather than simply in the exploitation of resources. There is a common assumption that to 'develop' is the same thing as to 'grow' - at the very least (as outlined above) that growth is required if we are to develop; and that is how the word is commonly used in terms like 'the developed countries'. But this assumption is open to challenge. Let us take an analogy from ourselves: we grow and develop during our childhood years, but there comes a point when we continue to develop without increasing in size. This distinction was highlighted recently in a World Bank Environment Working Paper, which stated:

'To grow means to increase in size by the assimilation or accretion of materials. To develop means to expand or realise the potentialities of: to bring to a fuller, greater, or better state. When something grows, it gets quantitatively bigger; when it develops, it gets qualitatively better, or at least different.'

Seen like that, there is no intrinsic reason why there should be conflict between development and conservation.

The Role of Technological Innovation in Sustainable Development

- 2.9 The technological revolution of the past two centuries has led to an unprecedented increase in the material welfare of the developed world, and a concomitant faith in the capacity of 'science' to solve any problems created by technological exploitation. For some people this has seemed to justify a preoccupation with maximising material welfare in the short term; the argument goes that in the long term, 'posterity can look after itself', because human technological ingenuity will always be able to overcome problems in the future. Indeed, a preoccupation with maximising the productivity of resources in the short term is seen by some as a prerequisite of long-term welfare, the steady accretion of capital being the key to ensuring

that standards of living will remain on a steadily upward curve.

- 2.10 The role of technological innovation is intimately bound up with questions of the possibility of 'green growth'. There is considerable scepticism among environmentalists about the effectiveness and the environmental safety of the 'technological fix'. However, innovation which enables us to maintain our existing standard of living, while progressively lessening the demands we make on renewable and non-renewable natural resources, may be the only socially acceptable way to achieve sustainable development.
- 2.11 In bringing forward our own policies for sustainable development, we shall monitor the above issues carefully and shall also initiate programmes and projects designed to further our understanding. SNH believes that now is the time to begin to focus less on growth in the traditional quantitative sense of the word and more clearly on development which is better in quality. After all, our planet, while continuing to develop, does not actually grow. We must explore the real limits to growth and learn to work within them. To do this means understanding how to deploy existing resources wisely and using our creativity and technological ingenuity to develop potential without damaging that on which our survival depends.

Part 3:

Guidelines for Sustainable Development

- 3.1 **Part 2** outlined the premises and principles on which SNH will base its policies for sustainable development and indicated the nature of some of the most important unresolved questions. **Part 3** is designed to develop a set of **Guidelines for Sustainability** which can be used as a basis for our own actions and our advice to others. Central to all of these guidelines is the recognition that achievement of greater sustainability will require changes in the relevant policy, regulatory and planning frameworks to which SNH can contribute but over which it has no direct control.
- 3.2 Frequently (as indicated in 2.4) these Guidelines will be capable of different interpretations by people with interests and values different from our own. In some cases, despite the best efforts of economists and policy analysts, it is not yet clear how they can or should be implemented. Contributing to further work on these issues, and indicating in more detail how the guidelines can be put into practice, will be an important component of the work of SNH in future years, as is described in more detail in **Part 4**.

Guideline 1: Non-renewable resources should be used wisely and sparingly, at a rate which does not restrict the options of future generations.

- 3.3 The exploitation of non-renewable resources, such as fossil fuels, mineral ores and aggregates, or even slowly renewing resources like peat, inevitably reduces the stock available to future generations. The same is true of developments which affect unique geological and landscape features. The rate of depletion should therefore take into account the uniqueness of the resource, the availability of alternative technologies, the potential for substitution of alternative resources, and the opportunities for recycling and re-use of primary materials. New technological developments may even enable renewable resources to be substituted for non-renewables, as for example in the case of electricity generation.
- 3.4 To support the implementation of this guideline, SNH will press for regulatory and planning policies which encourage the substitution of renewable for non-renewable resources, the development of alternative, less damaging, technological options, recycling and re-use.

Guideline 2: Renewable resources should be used within the limits of their capacity for regeneration.

- 3.5 In the exploitation of renewable resources for activities such as forestry, fisheries and agriculture, there is a maximum sustainable yield from each system beyond which resource degradation begins to set in. When we use the atmosphere, rivers, estuaries and the sea as 'sinks' for waste materials we are also treating them as renewable resources in that we rely on their natural self-cleansing capacity. In these cases it is possible to overload this self-cleansing capacity, leading to a long-term vicious cycle of resource degradation.
- 3.6 In order to maximise the yield of material of human interest from a renewable resource, forest, fishery and farming systems are often grossly simplified compared to natural ecosystems, and this may make them more vulnerable to pest infestations or other natural hazards and hence less sustainable. It is also important to bear in mind that these simplified agricultural and forestry systems replace more natural ecosystems and landscapes and therefore entail an environmental 'opportunity cost'. Other resources, both renewable and non-renewable, are usually imported into agricultural and forestry systems to improve the 'sustainable yield' and it is also necessary to consider the impact of these practices on the wider environment.
- 3.7 In recent years we have learned a great deal about how to improve the sustainability of our exploitation of farming and forestry systems without affecting their yield to an unacceptable extent. However, much of this has still to be applied on a wide enough scale to reduce significantly our impact on the natural heritage. Our understanding of the systems supporting the productivity of fishery resources, on the other hand, is less well developed and we are much further behind in the development of sustainable practices.
- 3.8 When we are dealing with areas protected under some form of designation because of their nature conservation or landscape interest, we shall need to develop a different approach to the concepts of sustainability and sustainable development (or even in some cases to decide that they do not offer a particularly helpful approach to management). For example, the climax ecosystem on any area of land is inherently sustainable: and

indeed the less we interfere with it, the more sustainable it will be. Its sustainability is therefore not an important issue. On the other hand, certain modified ecosystems, such as heather moorland, are **unsustainable** in the absence of human intervention. Its continued existence will depend on our ability to manage it in an appropriate manner, but again it may not be helpful to treat this as a 'sustainability' issue unless, for example, we are interested in the production of grouse as a renewable resource, or the survival of other species. Protected areas become much more relevant to SNH's policies on sustainability in relation to the quality of the environment as a whole (see Guideline 3, page 15).

3.9 SNH's policy on the sustainable development of renewable resources will involve the following:

- acquiring a better understanding of the long term sustainability of our manner of exploitation of a resource; because of the complexity of ecosystems and the consequent difficulty of predicting how many of them will behave in future (see Guideline 4, page 17);
- promoting of restorative measures to encourage recovery where resources have been damaged in the past;
- encouraging the wider application of existing knowledge on how to improve the sustainability of farming, forestry and fishery systems;
- developing a greater understanding of the interactions among farming, forestry and fishery systems and of how these interactions could be manipulated in the interests of greater overall sustainability; and
- reappraising planning, policy and regulatory frameworks to ensure that they send appropriate signals to managers of renewable resources.

Guideline 3: The quality of the natural heritage as a whole should be maintained and improved.

- 3.10 A high quality environment is one which is not subject to progressive depletion of its renewable resources nor wasteful exploitation of non-renewable resources; which is not polluted; and which provides opportunities for the outdoor inspiration, refreshment and recreation essential to a healthy society. Some of these aspects have been treated individually in Guidelines 1 and 2, (see pages 12 and 13). The key point here is that although we may, for convenience, deal with a particular resource as an isolated entity, we should not forget to consider its relationship to other resources and to the sustainability of the natural heritage as a whole.
- 3.11 Many of our essential goods and services (current and future) depend on a diversity of plant and animal life and the associated genetic resources. To some extent these resources will be conserved in areas protected from damaging human interference. However, SNH's policy of encouraging greater diversity in the wider countryside will be an important contribution to this guideline and will enable those biological resources to be more widely appreciated as a source of human enjoyment. In addition, bearing in mind Principle 4 (see 2.2), we should resist the underlying presumption that only species which are of human interest, for commercial or other reasons, are worthy of protection.
- 3.12 Pollution arises directly or indirectly from the exploitation of non-renewable or renewable resources. Where excessive, it can trigger a vicious circle of decline in the quality of a renewable resource, for example where pollution from agricultural run-off causes eutrophication in a loch. Because of the complexity of the interactions of natural systems it is not always possible to predict the nature or extent of the impact of a single pollutant or group of pollutants, or the time-scale over which they will act (the most extreme example of this is global warming). The SNH monitoring policy will be relevant to this aspect of sustainable development and should be capable of:
- (i) early detection of such impacts; and
 - (ii) monitoring the progress of such impacts, for example through their effects on indicator species.

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- 3.13 The international desire to conserve migratory species is an obvious example of why our consideration of the natural heritage as a whole should not stop at the boundaries of Scotland (see 2.2, Principle 2). Scotland is also subject to transboundary pollution (notably that which causes acid deposition) which may well constrain opportunities for sustainable development.
- 3.14 Looking at sustainability from the perspective of the environment as a whole SNH should consider the interactions among the various systems of resource exploitation, renewable and non-renewable. It is rarely possible to deal with the problems of one such system in isolation. It is also important to recognise that there is a subjective 'human' element to determining environmental quality. The capacity of the environment as a whole to sustain use is a matter of combining scientific and subjective information on the sort of environment people want. At the same time, it is important not to over-complicate issues to the extent that one becomes incapable of effective action (see Guideline 4, page 17).

Guideline 4: In situations of great complexity or uncertainty we should act in a precautionary manner.

- 3.15 The precautionary approach to environmental issues was developed in the context of the German regulatory system and was first advocated in a UK context by the Royal Commission on Environmental Pollution (*Air Pollution Control an Integrated Approach*, 1976; *Best Practicable Environmental Option*, 1988). It was subsequently adopted by the UK Government in *This Common Inheritance: Britain's Environmental Strategy* (1990) and is a fundamental principle in the Environmental Protection Act 1990.
- 3.16 The need for such an approach arose from the failures of the previous reactive systems of regulation, which required scientific proof of environmental damage from an activity or pollutant. The difficulty and delays entailed in obtaining this proof occasionally meant that significant, and sometimes irreversible, damage occurred before any preventative action could be taken. The precautionary principle, which advocates restraints on development on reasonable suspicion of possible environmental damage without waiting for scientific proof, is regarded as justified under the following circumstances:
- i) where the impacts envisaged are significant and/or potentially irreversible;
 - ii) where there are major gaps in our knowledge of the relevant systems and hence considerable uncertainty over the nature and extent of the possible impacts; and
 - iii) where the complexity of the system interactions is so great that it would be impossible to predict or identify the impact of a single development or activity.
- 3.17 The precautionary approach must not, however, be used as an excuse to needlessly paralyse development. SNH strongly supports reliance on the scientific basis of environmental risk assessment for the majority of cases. Where the precautionary approach is advocated on grounds of uncertainty, the aim should be to proceed as rapidly as possible to remove this uncertainty and restore the scientific basis of decision-making. Where it is advocated on grounds of irresolvable complexity, we should be alert to new developments which would enable us to apply a more scientific basis to our decision-making.

Guideline 5: There should be an equitable distribution of the costs and benefits (material and non-material) of any development.

- 3.18 This guideline implements the ethical Principles (1-3 inclusive) as stated in 2.2. Failure to take account of the welfare of future generations would mean that we are passing on real future costs to posterity. Failure to recognise environmental interdependence can mean the exporting of environmental problems from one place to another within a country or from one country to another. Failure to ensure a socially equitable distribution of costs and benefits can mean that a development can appear to be sustainable overall while providing all the benefits to one sector of society and imposing all the costs on another. Material as well as non-material costs and benefits should be included in such an analysis.
- 3.19 A variety of ingenious mechanisms has been devised to allow monetary values to be placed on non-material costs and benefits (e.g. hedonic price index, contingent valuation). However, SNH believes that such techniques tend to conceal the value-laden nature of these assessments and can exacerbate conflicts over resource use and development. In general we would advocate the separate assessment and evaluation of material and non-material costs and benefits.
- 3.20 Material costs and benefits can also give rise to problems of measurement. Even the choice of a quantitative indicator can impart value biases to the outcome of an analysis. Indeed, such manipulation has brought the technique of cost benefit analysis itself into disrepute in some quarters. In using the technique of cost benefit analysis, SNH will attempt to ensure that any such biases are made explicit. Also, in assessing the outcomes of cost benefit analyses carried out by others, we shall be alert to the possibility of this kind of manipulation.
- 3.21 An important mechanism for encouraging the equitable distribution of costs and benefits is to require the polluter or developer to pay the full costs involved, including compensation for non-material costs or some other form of restitution. SNH will support the application of this principle as widely as possible, while recognising that legislative change may be necessary before it can be implemented fully.

Part 4: Priorities for Action

Applicability of the Guidelines.

4.1 The citation from our founding legislation in 1.1 states that '... SNH shall have regard to the desirability of securing that anything done, whether by SNH or any other person, in relation to the natural heritage of Scotland is undertaken in a manner which is sustainable'. The wording here clearly implies that SNH is not under a strict duty to apply 'sustainability' to everything it deals with; but we must consider whether to apply it or not. The main purpose of this paper is to ensure that decisions are taken on a well-considered and consistent basis.

4.2 Generally, the key to such a decision will be the degree to which an activity or development is of significance in relation to the natural heritage, and the degree to which it is essential for human well-being. For example:

(i) **Agriculture**

Agriculture significantly affects the natural heritage and is also of great significance for human welfare. Therefore, seeking sustainability in this area is a high priority.

(ii) **Heather Moorland Management**

In many areas of Scotland, heather moorland can only be sustained in the long term if it is regularly managed. The purpose of that management is often the production of red grouse as a sporting resource. Where the reason for SNH's interest is to ensure a particular yield of red grouse, or of any other resource, the concept of sustainable development is very relevant. We are also likely to have an interest in the wider wildlife and landscape impacts of any management system chosen to ensure the sustainable development of grouse as a resource.

(iii) **Species Introductions**

In most cases, decisions about species introductions are unlikely to be motivated by a desire to create more sustainable systems, although we would need to ensure that the introduction itself would be viable in the long term, e.g. the reintroduction of the sea eagle. (We should maintain a clear distinction between this concern for the viability of an introduction and the concept of sustainability *per se*.) It is conceivable that

we could actively seek to improve the sustainability of an ecosystem through, for example, the reintroduction of the wolf to help control red deer populations. However, such an action is unlikely to be socially acceptable and, therefore, should not be pursued. On the other hand, the introduction of wild boar to improve the sustainability of woodland ecosystems may be more socially acceptable.

(iv) **Mineral extraction**

Mineral extraction is a significant economic activity which can have profound effects on the natural heritage. At face value it can be seen as unsustainable as it involves the progressive depletion of a non-renewable resource. However, it is always necessary to consider the wider context within which an activity takes place. Mineral extraction can result in long-term benefits which add to or maintain quality of life. Sustainability is relevant because of the need to assess whether these benefits compensate for the loss of the mineral resource to future generations and for the environmental costs of extraction. Guidelines 3 and 5 are, therefore, particularly relevant.

- 4.3 Not all the guidelines will be applicable in every case. For example, many issues will not involve both renewable and non-renewable resources; also, as noted under Guideline 4, the precautionary principle should only be applied where it is not possible to base preventative measures on a scientifically-based understanding of the situation.

Development of SNH Policy, Research and Practice

- 4.4 As noted above, concern for the sustainability of a development is likely to be more relevant to that part of the SNH remit which covers the wider environment (i.e. systems which are being actively managed for the purpose of exploiting a resource) than to protected and designated areas (see 3.8). We have produced papers on energy, tourism, transport, waste management, water and sewerage services and are now developing policies on the more fundamental primary areas of resource use, especially agriculture, forestry and red deer.

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- 4.5 We shall also develop more detailed policy guidelines in relation to the exploitation of non-renewable resources (see 3.3-4). These will provide a basis for action in commenting on planning applications for new developments and also in relation to requests for advice from government and other bodies.
- 4.6 We recognise that there are many points of interaction between various aspects of the exploitation of resources, and shall avoid treating issues in isolation from one another. For example the current level of exploitation of fishery resources to provide fertiliser for agricultural use or feed for livestock is probably unsustainable and has adverse impacts on the wider marine and rural environments.
- 4.7 We are working on a series of area-wide approaches to sustainability. These will consider the development of an area, including (as appropriate) renewable and non-renewable resources, interactions arising from the exploitation of resources and the impact on the quality of the natural heritage as a whole (see 3.3-14). In some cases these will be demonstration projects, involving the use of SNH grant. Others will involve research, survey and monitoring and will contribute to the advice we provide to others. The following are examples:
- Ettrick and Lauderdale Demonstration Project;
 - The Cairngorms Report and the SNH response to it;
 - The Minch study; and
 - The intensive agriculture project, Targeted Inputs for a Better Rural Environment (TIBRE), involving a feasibility study in each region.
- 4.8 We shall commission a series of studies, backed by demonstration projects, to guide our thinking on the issues of 'green growth' and the role of new technology in improving the sustainability of future developments (see 2.6-11). Some such projects have already been approved by The Board in relation to the TIBRE programme. We shall also monitor closely work being done elsewhere on the use of cost benefit analysis to aid decisions on the sustainability of a development and shall provide detailed guidelines for our own staff on the critical appraisal of such analyses (see 3.18-21).

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- 4.9 We shall initiate a study of existing Scottish, UK and international policy and regulatory frameworks and their current impact on the sustainability of development in Scotland. We shall also advise on any changes which we consider necessary to these frameworks (see 1.12, 3.4, 3.9 and 3.15-17).

Working with and through Others

- 4.10 Achieving more sustainable development will only be possible for SNH through active co-operation with others. We shall work through and with the following:
- UK and Scottish Office government departments;
 - industry;
 - public and private interest groups;
 - voluntary bodies; and
 - individual decision-makers.
- 4.11 We shall also contribute actively to the development of our understanding of the concept of sustainability and of how to implement it more effectively. The Government has a key role to play in the development of sustainability in this country. SNH looks to Government to:
- provide national guidance on sustainability issues;
 - set national targets for the achievement of sustainable practices;
 - clarify the locus of responsibility for achieving targets;
 - facilitate the involvement of a wide range of people in applying the principles of sustainability to their own decision-making; and
 - provide for the monitoring of progress towards the achievement of national targets.

Public Understanding and Education

- 4.12 It is vitally important that the general public understands and supports the adoption of a more sustainable approach to development in Scotland. *Caring for the Earth: A Strategy for Sustainable Living*, the global strategy document on sustainability published prior to the 1992 Rio Conference, placed great stress on education. *Agenda 21* states that 'education is critical for promoting sustainable development and improving the capacity of the people to address environmental and development issues achieving

environmental and ethical awareness, values and attitudes, skills and behaviour consistent with sustainable development and public participation’.

- 4.13 SNH does not advocate the development of environmental education as a separate subject in the school curriculum. It should be an essential and integral part of the educational experience, a ‘life skill’ to be applied in all other subject areas.
- 4.14 SNH considers that environmental education, for all ages and at all levels, is an essential component of its policy for sustainable development. This should include formal schooling, but there is an equally important need to reach a wide spectrum of the general public, from toddler to senior citizen. If we are to succeed in improving the sustainability of developments in Scotland and more widely, we shall have to work through the political system and we can only do this if we have public support.
- 4.15 SNH will encourage the inclusion of environmental studies, including an understanding of sustainability, as an integral part of the educational experience, rather than treating it as a separate subject. In achieving this we shall encourage ‘outdoor learning’ as well as classroom teaching. A prerequisite for this will be a series of programmes to train educational professionals at all levels.
- 4.16 A particularly important requirement will be to provide training in sustainable development for practising resource managers, including farmers, foresters, estate workers, fishery managers and those working in tourism, civil engineering and water resource management.

A Unique Role for SNH

- 4.17 Given our broad remit and the fact that our founding legislation requires us to consider the sustainability of developments in Scotland, SNH is potentially in a very influential position. This also places us in a position of great responsibility to make the most of this opportunity.
- 4.18 We shall maximise our use of the skills of our own staff and train them in new techniques where necessary. We shall ensure that

our staff contribute to the development of an integrated overall approach to sustainability, based on our experience with the programmes and projects outlined above. We shall also take the leading role in the involvement of other organisations in devising a Scotland-wide approach to sustainable development.

SNH

October 1993

Comments or views on this paper are welcome and should be addressed to Nicholas Gubbins

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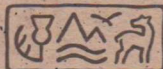
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**SCOTTISH
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HERITAGE**



Scottish Natural Heritage is an independent body established by Parliament in 1992, responsible to the Secretary of State for Scotland.

Our task is to secure the conservation and enhancement of Scotland's unique and precious natural heritage - the wildlife, habitats and landscapes which have evolved in Scotland through the long partnership between people and nature.

We advise on policies and promote projects that aim to improve the natural heritage and support its sustainable use.

Our aim is to help people enjoy Scotland's natural heritage responsibly, understand it more fully and use it wisely so that it can be sustained for future generations.

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